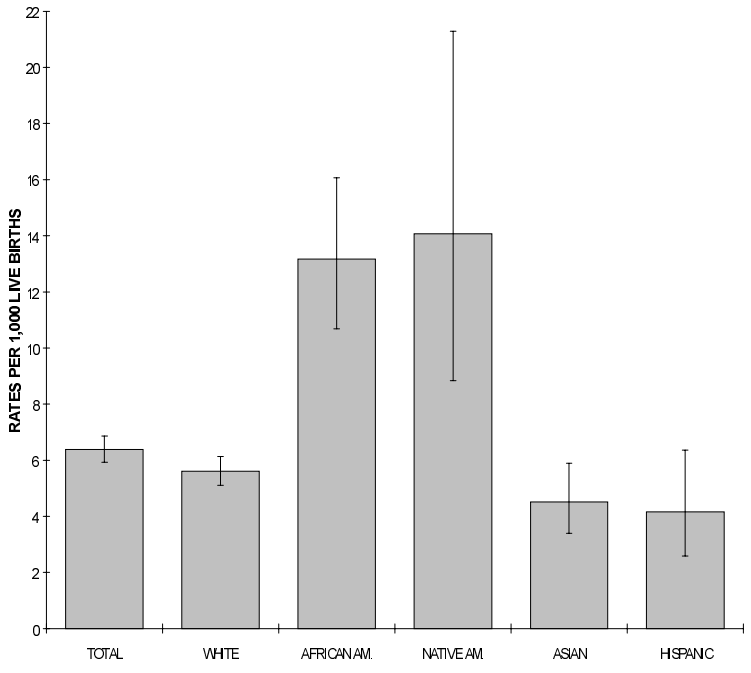
CHAPTER III. RACE/ETHNICITY AND INFANT MORTALITY

Concern about disparities in infant mortality rates across the racial/ethnic groups of King County was an important factor leading to the establishment of the Infant Mortality Review. This chapter discusses trends in infant mortality by race/ethnicity and focuses on the gap in infant mortality between African Americans and whites.

TRENDS IN INFANT MORTALITY BY RACE/ETHNICITY

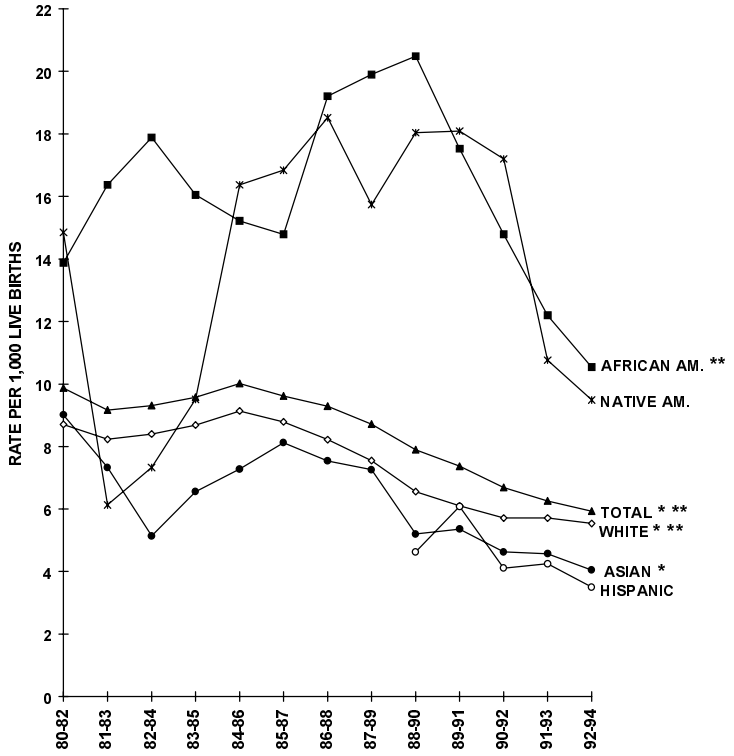
FIGURE 3.1
INFANT MORTALITY BY RACE/ETHNICITY, KING COUNTY, FIVE YEAR AVERAGE, 1990-1994



SOURCE: BIRTH AND DEATH CERTIFICATES.

Infant mortality varied significantly across the major racial/ethnic groups living in King County (Figure 3.1). The rates were higher than average among African Americans and Native Americans. Compared with whites, their rates were 2.4 and 2.5 times higher, respectively, during the 1990 to 1994 period. If their rates had been equal to the rate among whites, 11 fewer African American infants and 3 fewer Native American infants would have died each year during this five-year period. An average of 93 white, 19 African American, 11 Asian, 4 Native American and 4 Hispanic infants died each year during this time period.

FIGURE 3.2
INFANT MORTALITY BY RACE/ETHNICITY, KING COUNTY, 1980-1994

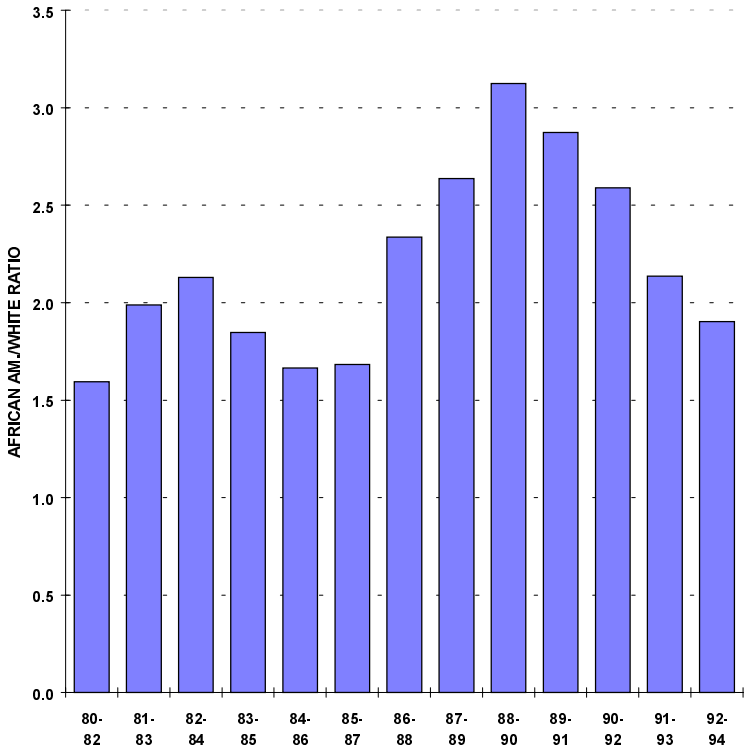


* THIS TREND FROM 1980-1994 IS A STATISTICAL SIGNIFICANT DECREASE.
** THIS TREND FROM 1988-1994 IS A STATISTICAL SIGNIFICANT DECREASE.
SOURCE: BIRTH AND DEATH CERTIFICATES.

The patterns of infant mortality over time also differed among the groups (Figure 3.2). The white infant mortality rate fluctuated without significant change from 1980 to 1984, then decreased significantly, dropping most rapidly between 1989 to 1990. The rate seems to have plateaued in recent years.

Among African Americans, the rate generally increased through 1990, and then began a dramatic decline in 1991. The small number of deaths among Native Americans makes trend interpretation difficult, but the rate appeared to increase in the early 1980s, remained high in the late 1980s and then declined beginning in 1991. Asians showed a fluctuating pattern until 1988, when the rate began a general downward trend. Data on Hispanics became available in 1988; since that time, their infant mortality rate has generally trended downwards.

FIGURE 3.3
AFRICAN AMERICAN/WHITE RATIO FOR INFANT MORTALITY, KING COUNTY, THREE YEAR ROLLING AVERAGES, 1980-1994



SOURCE: BIRTH AND DEATH CERTIFICATES.

The disparity in infant mortality between Native and African Americans on the one hand and whites on the other has consistently been a cause for concern. The ratio between African American and white rates reached a peak of 3.1 in the 1988 to 1990 period (Figure 3.3). At that time, an average of 19 more deaths occurred each year among African Americans infants relative to the expected number, had they had the same rate as whites. By the 1992 to 1994 period, the African American/ white ratio declined to 1.9 and the average number of excess deaths per year dropped to 8. The infant mortality gap[a] between African Americans and whites decreased from 13.9 to 5.0 per 1,000 live births.

The gap between Native Americans and whites peaked at 12.0 deaths per 1000 live births in the 1989 to 1991 period and has since decreased to 4.0 during the 1992-94 period.

The decrease in the gap for both Native and African Americans is encouraging. However, more work remains if King County is to reach the goal of eliminating the gap completely. To do so, a better understanding of the factors causing the gap is needed. We explore potential explanations of the gap and its decline in the next section. We focus on the African American/white disparity because the relatively small number of deaths among Native Americans makes further analysis difficult.

[a] The infant mortality gap, or rate difference, is defined as the African American infant mortality rate minus the white infant mortality rate: $IMR_{\text{African American}} - IMR_{\text{white}}$.

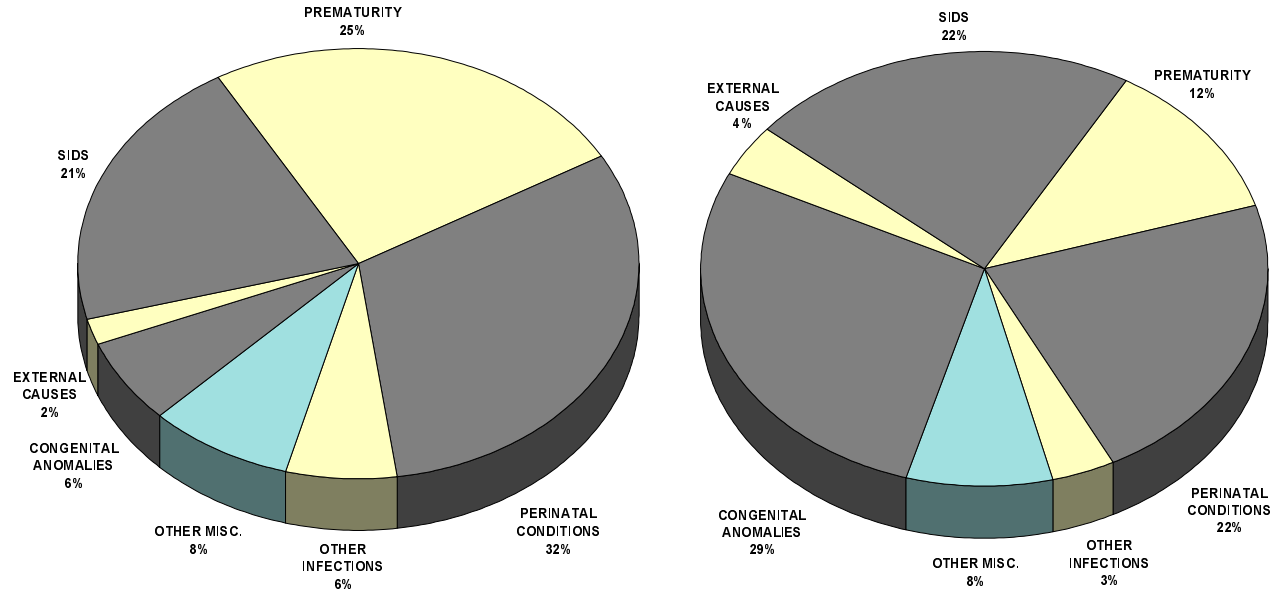
TRENDS IN AFRICAN AMERICAN INFANT MORTALITY

This section examines the trends in specific causes of infant deaths and trends in risk factors for infant deaths among African Americans. This allows us to better understand the reasons for the high infant mortality rate among African Americans and the recent improvement in the rate.

CAUSES OF DEATH

The leading causes of infant mortality differed among African Americans and whites (Figure 3.4). Prematurity and perinatal conditions figured more prominently among the deaths of African American infants while congenital anomalies made up a larger share of deaths among whites. This difference may have been due in part to the larger role that adverse social and economic conditions play in the causation of deaths from prematurity and perinatal conditions. African Americans are more likely to be exposed to such conditions than whites. SIDS (Sudden Infant Death Syndrome) accounted for slightly more than 20 percent of deaths in both groups.

FIGURE 3.4
MAJOR CAUSES OF INFANT MORTALITY,
AFRICAN AMERICANS COMPARED TO WHITES,
KING COUNTY, 1992-1994

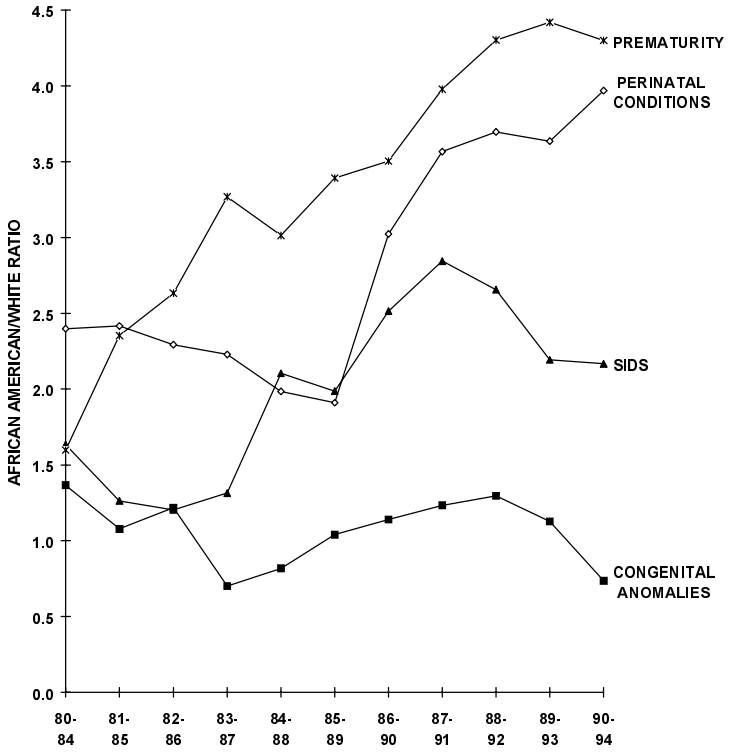


SOURCE: BIRTH AND DEATH CERTIFICATES.

Trends in the four major causes of death (prematurity, perinatal conditions, SIDS and congenital anomalies) differed between blacks and whites. Infant deaths from all of these causes decreased among whites, beginning in the mid-1980s, with the largest declines occurring in SIDS and prematurity. Among African Americans, mortality decreased from SIDS, prematurity and congenital anomalies since the mid 1980s but deaths from perinatal conditions rose and only recently began to decline.

These differing trends in causes of death among African American and white infants, lead to prematurity and perinatal conditions having the highest African American-to-white death ratios among the major causes of death. (Figure 3.5)

FIGURE 3.5
MAJOR CAUSES OF INFANT MORTALITY, RATIO OF AFRICAN AM. TO WHITE RATES, FIVE YEAR ROLLING AVERAGES, 1980-1994



SOURCE: BIRTH AND DEATH CERTIFICATES.

The large decrease in the SIDS rate among African Americans contributed most to narrowing the infant mortality gap between the 1988-90 and 1992-94 periods, accounting for nearly 40 percent of the decrease.

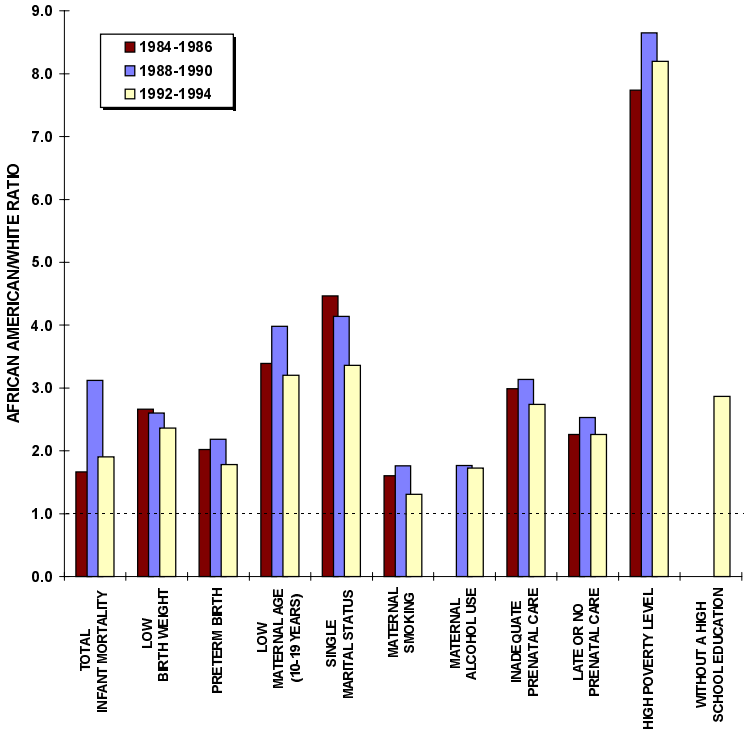
Declining rates of deaths from prematurity and congenital anomalies also contributed to closing the gap. During the 1992-94 period, perinatal conditions and prematurity were the largest components of the gap, each contributing 40 percent of the total.

Future efforts to narrow the gap between African Americans and whites should focus on prevention of prematurity and assuring that infants are placed on their backs to sleep.

RISK FACTORS

African Americans had higher levels of measured risk factors for infant death relative to whites. For example, the low birthweight rate for African American infants was 2.4 times higher than that of whites. The smoking rate among pregnant women was 1.3 times higher and the rate of inadequate prenatal care was 2.7 times higher during the 1992-94 period.

FIGURE 3.6
RATIOS OF BIRTH INDICATORS, AFRICAN AMERICAN TO WHITE, KING COUNTY, 1980-94



HIGH POVERTY LEVEL: PERCENT OF ALL BIRTHS OCCURRING IN HIGH POVERTY CENSUS TRACTS
WITHOUT HIGH SCHOOL EDUCATION: PERCENT OF ALL BIRTHS AMONG WOMEN AGE 20 OR OLDER WHO HAVE NOT COMPLETED HIGH SCHOOL
*DATA ON EDUCATION STARTED TO BE COLLECTED SINCE 1992.
SOURCE: BIRTH AND DEATH CERTIFICATES.

The effects of the measured risk factors explain nearly all (80 percent) of the increased risk of death among African American infants.[b] As shown in Figure 3.6, the occurrence of risk factors among African Americans relative to whites increased in the late 1980s and then declined.

The improving African American / white ratios for low birthweight, preterm birth, teen birth and unmarried parents were primarily due to declining rates of risk factors among African Americans, as shown in Table 3.1.

[b] The crude odds ratio of infant death among African Americans relative to whites was 2.1. After adjustment for maternal age, adequacy of prenatal care, alcohol and smoking, maternal education and marital status, the odds ratio decreased to 1.2 (95 percent CI: 0.59-2.55).

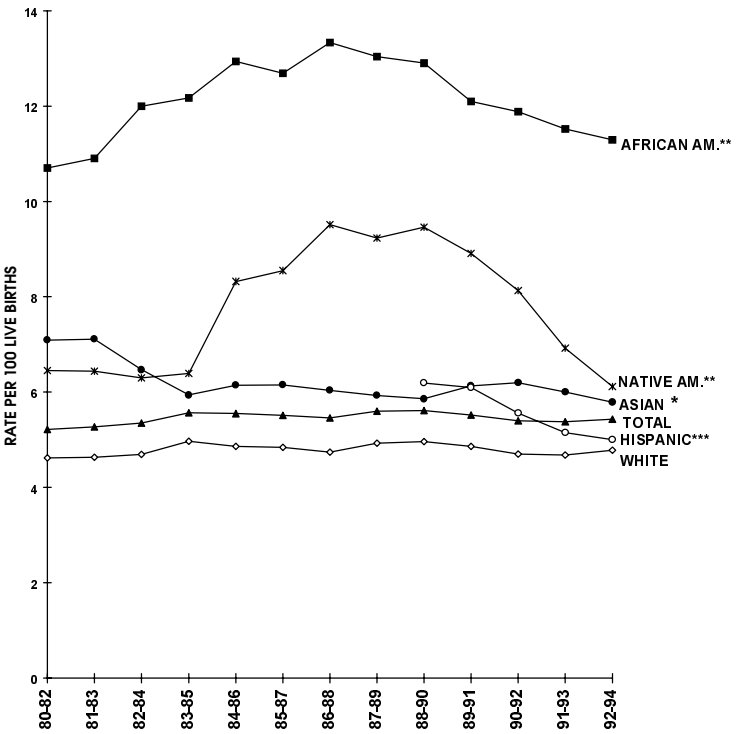
TABLE 3.1
INFANT MORTALITY RISK FACTOR TRENDS
KING COUNTY
FROM 1988-1990 TO 1992-1994

	1988-1990		1992-94		% change: 88/90 - 92/94	
Risk Factor	white	African American	white	African American	white	African American
Low Birthweight	4.98	12.99	4.78	11.29	-4.02	-13.09
Preterm Birth	8.09	17.73	8.24	14.68	1.85	-17.20
Inadequate Prenatal Care	10.13	33.05	7.49	20.59	-26.06	-37.70
Teen Pregnancy	5.51	21.90	5.86	18.79	6.35	-14.20
Unmarried Parents	15.72	65.14	18.21	61.21	15.84	-6.03
Smoking	20.02*	33.43*	15.48	20.21	-22.68	-39.55
Drinking	6.20**	10.97**	3.98	6.88	-35.81	-37.28

*Data from 1986-88 because of inconsistent data between 1989-91
**Data from 1989-90 because first year data were collected was 1989

These improvements in risk factors among African Americans partially explained the narrowing African American/white gap in infant mortality. Despite these improvements, risk factor levels remained high among African Americans.

FIGURE 3.7
LOW BIRTH WEIGHT
BY RACE IN KING COUNTY
THREE YEAR ROLLING AVERAGES, 1980-1994

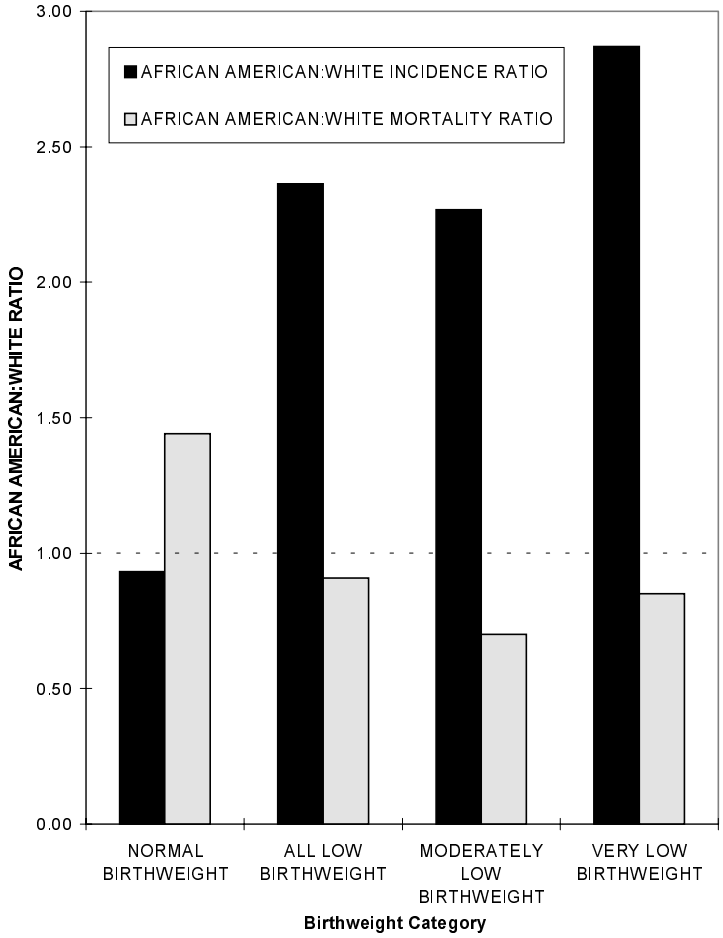


* TREND FROM 1980-1994 IS A STATISTICALLY SIGNIFICANT DECREASE
** TREND FROM 1988-1994 IS A STATISTICALLY SIGNIFICANT DECREASE
*** TREND FROM 1989-1994 IS A STATISTICALLY SIGNIFICANT DECREASE
SOURCE: BIRTH CERTIFICATES.

Their presence shows the need for further progress. Low birthweight is a particularly significant cause of infant death. A decrease in the low birth weight rate and/or improved survival among low birthweight infants would result in a lower infant mortality rate.

As the following data suggest, it is the higher low birthweight rate among African Americans rather than poorer survival of low birthweight African American infants that contributed to the infant mortality gap. Similarly, it was the improvement in the low birthweight rate among blacks relative to whites that led to a lessening of the gap in recent years. The total, white, and Asian low birthweight rates in King County have not changed since 1980, while the African American, Native American and Hispanic rates have improved since the late 1980s (Figure 3.7).

FIGURE 3.8
LOW BIRTHWEIGHT INCIDENCE AND MORTALITY
AFRICAN AMERICAN TO WHITE RATIOS
KING COUNTY, 1992-1994



SOURCE: BIRTH AND DEATH CERTIFICATES.

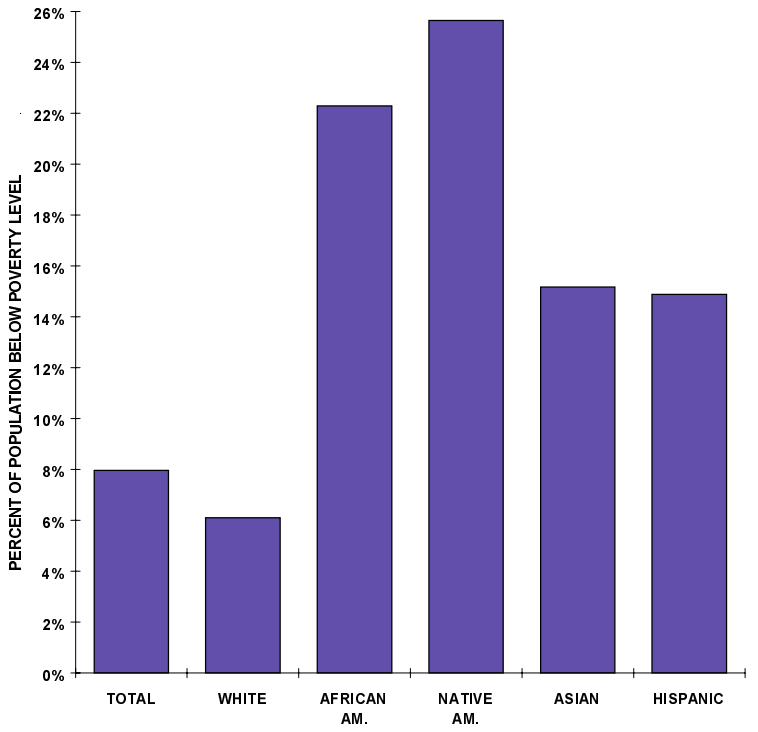
While the *occurrence* of low birthweight infants is higher among African Americans, Figure 3.8 shows that the *mortality rate* of these low birthweight infants is actually lower among African Americans. This means that reducing the *occurrence* of low birthweight among African Americans is a key strategy for decreasing infant mortality.

The most important strategy for reducing the low birthweight rate among African Americans is to decrease the occurrence of premature births. The preterm birth rate among black babies has decreased significantly since 1988, as shown above in Table 3.1. Improving access to prenatal care, further reducing smoking and substance abuse, diagnosing and treating genital tract infections and addressing stress and lack of social support are all potential interventions to further reduce preterm births.

We can conclude from this analysis that risk factors available from birth certificate explain most of the excess deaths among infants born to African American mothers and that decreases in these risk factors (especially those causing preterm births) are partly responsible for the decreasing infant mortality gap.

In addition, exposure to unmeasured factors such as higher levels of family and personal stress or lower levels of social support can put African American infants at risk.

FIGURE 3.9:
POVERTY RATES BY RACE
KING COUNTY, 1989



SOURCE: 1990 CENSUS.

The next question to address is *why* risk factors are more common among African Americans. Lower socioeconomic status among African Americans may be part of the answer (Figure 3.9). As described in Chapter II, low socioeconomic status is associated with the measured risk factors for infant death. The federal poverty level is a good measure of socioeconomic status because it takes into account both income and the number of people in a household supported by that income. African Americans (and Native Americans) living in King County are much more likely to live in poverty than whites. In 1989, over 22 percent of African Americans in King County lived in households with incomes below poverty level, compared to six percent of whites. An even higher proportion of Native Americans lived in poverty.

In addition, 23.6% percent of African American births occurred among women living in high poverty census tracts while only 2.9% percent of white mothers lived in these tracts.

Therefore, a portion of the higher rates of infant mortality and risk factors among African American families may have been due to their higher poverty level. Although vital records do not have income information, level of education was added to the birth certificate data in 1992. Education is another useful marker of socioeconomic status. Maternal education attainment of less than twelve years was associated with a 1.3 fold increase in risk of infant death and explained up to 40 percent of the increased risk among African Americans, even after controlling for the presence of other risk factors. The higher ratio of risk factors may in part be due to the impact of discrimination and racism,[1] which may lead to harmful coping mechanisms, increase stress and discourage the use of appropriate health services. Further research is needed to identify these additional factors and to develop and evaluate interventions to address them.

CONCLUSIONS

Infant mortality rates are higher among African and Native Americans than among other ethnic groups in King County. A large portion of this infant mortality gap is explained by the lower socioeconomic status of these groups as well as by the increased rates of measured risk factors for poor birth outcomes such as inadequate prenatal care, smoking, alcohol use and single marital status. Additional unmeasured risk factors most likely also play an important role, including the effects of racism and discrimination, stress and lack of social support.

The gap in infant mortality between Native and African Americans had diminished in recent years. Measured risk factors have declined in these groups. Especially noteworthy is the decline in the occurrence of low birthweight infants among Native and African Americans; no change occurred in the rate among whites. A large part of the decrease in the low birthweight rate is due to the decline in preterm deliveries. It appears that public health and community efforts to reduce the gap are producing good results. Further efforts are needed to continue this progress and should focus on reducing risk factors for preterm birth through improving access to prenatal care, further reducing smoking and substance abuse, diagnosing and treating genital tract infections and addressing stress, discrimination, racism and lack of social support. Another important tool to decrease the gap is to emphasize safe (supine) sleep positions for infants to prevent SIDS.

REFERENCES

[1] Krieger N, Rowley DL, Herman AA, et al. Racism, sexism and social class: implications for studies of health, disease and well-being. Am J Prev Med 1993; 9(supp 2):82-122.